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NOTIFICATION OF TRANSMITTAL OF COPIES OF TRANSLATION OF THE INTERNATIONAL PRELIMINARY **EXAMINATION REPORT** (PCT Rule 72.2)

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Date of mailing (day/month/year) 14 October 2004 (14.10.2004)	
Applicant's or agent's file reference PH-1733-PCT	IMPORTANT NOTIFICATION
International application No. PCT/JP2003/001917	International filing date (day/month/year) 21 February 2003 (21.02.2003)
Applicant KUMIAI CH	HEMICAL INDUSTRY CO., LTD. et al

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

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3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.



The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

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Translation

PATENT COOPERATION TREATY

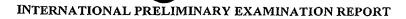
PCT Application PCT/JP2003/001917

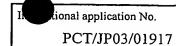
PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PH-1733-PCT	FOR FURTHER ACTION SeeNotification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)			
International application No. PCT/JP03/01917	International filing date (day/month/year) 21 February 2003 (21.02.03)		Priority date (day/month/year) 29 March 2002 (29.03.02)	
International Patent Classification (IPC) or n	ational classification and IPC			
C12N 15/29, 9/88, 15/60, 5/14, 2	A01H 5/00			
Applicant KUN	MAI CHEMICAL INDUS	STRY CO.,	LTD.	
This international preliminary examand is transmitted to the applicant a	nination report has been prepare according to Article 36.	d by this Interi	national Preliminary Examining Authority	
2. This REPORT consists of a total of	2. This REPORT consists of a total of 4 sheets, including this cover sheet.			
This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).				
These annexes consist of a t	otal of sheets.			
3. This report contains indications relating to the following items:				
I Basis of the report				
II Priority				
III Non-establishmen	t of opinion with regard to nove	Ity, inventive s	step and industrial applicability	
IV Lack of unity of in			i de la lieutivita	
V Reasoned statemen	nt under Article 35(2) with rega anations supporting such statem	rd to novelty, i ent	inventive step or industrial applicability;	
VI Certain document	s cited			
VII Certain defects in				
VIII Certain observation	ons on the international applicat	ion		
Date of submission of the demand	Date	of completion	of this report	
02 April 2003 (02.0	04.03)	06 August 2003 (06.08.2003)		
Name and mailing address of the IPEA/II	P Aut	horized officer		
Facsimile No.	Tele	ephone No.		





I.	Basis	s of the r	eport					
1.	With	regard t	to the elements	s of the international ap	oplication:*			
		the inte	ernational appl	lication as originally fil	led			
	\boxtimes	the des	scription:					
		pages			1-50,53	3		, as originally filed
		pages						, filed with the demand
		pages		51,52		, filed with the	letter of	23 July 2003 (23.07.2003)
	\boxtimes	the clai	ime.			_		
	لحكا	pages	11113.		2-4,7			, as originally filed
		pages		•	2-4,7		ed (together v	with any statement under Article 19
		pages				,	Na (100	, filed with the demand
		pages		1,5,6,8		, filed with the	letter of	18 June 2003 (18.06.2003)
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		pages						, as originally filed
		pages pages						, filed with the demand
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		₩ '	the description	s				
		<u></u>	the claims, No:	s	 .			
		t	the drawings, s	sheets/fig				
5.		This rep	ort has been enthe disclosure	stablished as if (some as filed, as indicated in	of) the amendm the Supplement	ents had not beer al Box (Rule 70.2	n made, since 2(c)).**	e they have been considered to go
2	in inis and 70	s report 0.17).	as "originali	y filed" and are not	annexed to this	is report since th	hey do not d	n under Article 14 are referred to contain amendments (Rule 70.16
* /	Any re	≥placeme	ent sheet contai	ining such amendments	s must be referre	ed to under item I	and annexed	l to this report.

INTERNATIONAL PREJIMARY EXAMINATION REPORT

In	onal application No.
	PCT/JP03/01917

Statement			
Novelty (N)	Claims	1-8	YE
	Claims		NO
Inventive step (IS)	Claims	_	YE
	Claims	1-8	МО
Industrial applicability (IA)	Claims	1-8	YE
	Claims		No

Document 1: WO, 1-85970, A2 (Louisiana State University and Agricultural and Mechanical College), 15 November, 2001 (15.11.01), & EP, 1280928, A2, & AU, 200161358, A

Document 2: "A Naturally Occurring Point Mutation Confers Broad Range Tolerance to Herbicides That Target Acetolactate Synthase," (P. Bernasconi, et al.), J. Biol. Chem., 1995, Vol. 270, No. 29, pages 17381-17385 Document 3: "Intragenic Recombination in the CSR1 Locus of Arabidopsis," (G. Mourad, et al.), Mol. Gen. Genet., 1994, Vol. 243, No. 2, pages 178-184

Document 4: "Biosynthesis of 2-aceto-2-hydroxy Acids: Acetolactate Synthases and Acetohydroxyacid Synthases, (David Chipman, et al.), Biochim. Biophys. Acta, 1998, Vol. 1385, pages 401-419

Document 5: "Role of Tryptophanyl Residues in Tobacco Acetolactate Synthase," (C.K. Chong, et al.),

Biochem. Biophys. Res. Commun., 1999, Vol. 259, No. 1, pages 136-140

Document 6: "Amino Acid Residues Conferring Herbicide Tolerance in Tobacco Acetolactate Synthase," (C.K. Chong, et. al.), Biochem. Biophys. Res. Commun., 2000, Vol. 279, No. 2, pages 462-467

Document 7: "The Molecular Basis of Sulfonylurea Herbicide Resistance in Tobacco," (Kathleen Y. Lee, et al.), The EMBO J., 1988, Vol. 7, No. 5, pages 1241-1248

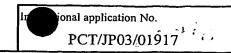
Claims 1-8

The subject matters of claims 1-8 do not appear to involve an inventive step in view of documents 1-7 cited in the ISR.

Document 1 describes *Oryza sativa*-herbicide tolerant ALSs (1) identical with the amino acid sequence represented by SEQ ID NO:2 of the present application except 171st His and 172nd Ser, (2) identical with the amino acid sequence represented by SEQ ID NO:4 of the present application except 171st His (identical also in the 548th mutation of the invention of the present application), (3) identical with the amino acid sequence represented by SEQ ID NO:6 of the present application except 171st His (identical also in the 627th mutation of the invention of the present application), and (4) identical with the amino acid sequence of SEQ ID NO:8 of the present application except 171st His (identical also in the 548th and 627th mutations of the invention of the present application).

Document 2 describes to the effect that a point mutant of an ALS acquires tolerance to sulfonylurea-based herbicides, imidazolinone-based herbicides, PC herbicides and triazolopyrimidine-based herbicides. Document 3 describes (1) to the effect that a point mutant of *Arabidopsis thaliana* ALS acquires herbicide tolerance, (2) to the effect that the resistance to PC-based herbicides can also be conferred because of a point-mutated site, and (3) to the effect that in both herbicide-tolerant *Arctium lappa* ALS and *Zea mays* ALS, Trp552 is mutated into Leu.

INTERNATIONAL PREMINARY EXAMINATION REPORT



Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

Document 4 describes an alignment diagram of ALS sequences of various species, and shows active sites and sites of mutation to confer SU herbicide tolerance. The document also describes to the effect that the mutations of P173S of *Brassica napus*, P197S, S653N, M124I and R199E of *A. thaliana* and P196Q of *Nicotiana tabacum* confer herbicide tolerance.

Document 5 describes to the effect that in *Nicotiana tabacum* ALS, a mutation from Trp573 into Phe could confer herbicide tolerance.

Document 6 describes to the effect that in *Nicotiana tabacum* ALS, point mutations of Ala121, Pro187 and Ser652 could confer herbicide tolerance.

Document 7 describes to the effect that in a herbicide-tolerant mutant of Nicotiana tabacum ALS, Pro196 had been mutated into Gln and Ala, while Trp573 had been mutated into Leu.

As described in document 4, as of the priority date of the present application, the amino acid sequences of ALSs of various species, highly preservative sequence sites, active sites and sites of mutation to confer herbicide tolerance are publicly known. Furthermore, from documents 1-7, it is publicly known that if an ALS is point-mutated, it can have herbicide tolerance and acquire PC-based herbicide tolerance. From documents 2-7, it is publicly known that if Pro, Ser, Trp, Ala, Met or Arg is substituted in an amino acid sequence encoding an ALS, herbicide tolerance can be acquired. So, a person skilled in the art could have easily conceived of (1) mutating a site known to confer herbicide tolerance for further enhancing herbicide tolerance in the herbicide-tolerant mutants of *Oryza sativa* ALS described in document 1, and (2) mutating the portion of Pro, Ser, Trp, Ala, Met or Arg as the target of point mutation.

Moreover, as of the priority date of the present application, it is considered to have been well-known techniques in this field, (1) to integrate a publicly known DNA into a vector, (2) to integrate the vector into a host cell for transformation, and (3) to prepare an antibody against a peptide having a known sequence. So, it would have been easy to prepare a vector of a mutated ALS gene of *Oryza saliva*, and to transform the said vector into a host cell.

The effects achieved by the subject matters of claims 1-8 of the present application are considered to be predictable.